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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,164	07/05/2006	Thian Hoey Tio	TS1519 US	9075

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EXAMINER	
RIDLEY, BASIA ANNA	

ART UNIT	PAPER NUMBER
1764	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/553,164	TIO, THIAN HOEY	
	Examiner	Art Unit	
	Basia Ridley	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 March 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 March 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuderer (USP 4,650,651) in view of Bertaux et al. (EP 776959) and further in view of Parkhurst (USP 2,324,172).

Regarding claims 1-2, Fuderer discloses a process for preparation of gas containing hydrogen and carbon monoxide from a carbonaceous feedstock, comprising:

- (a) partially oxidizing a carbonaceous feedstock (11) in a vertically oriented tubular partial oxidation reactor vessel having an upper end and a lower end (Fig. 1), the vessel comprising a burner at the upper end (C5/L3-27), thereby obtaining an effluent comprising a first gaseous mixture of hydrogen and carbon monoxide (C5/L3-27);
- (b) catalytically steam reforming a carbonaceous feedstock (1) by feeding a feed of steam (2) and the carbonaceous feedstock (1) to convective steam reformer (Fig. 1) comprising a tubular reactor provided with one or more tubes (4) containing the reforming catalyst, to obtain a steam reforming product;
- (c) feeding the steam reformer product to the upper end of the partial oxidation reactor to obtain a mixture of the effluent of step (a) and the steam reformer product (Fig. 1); and
- (d) providing heat for the steam reforming reaction in step (b) by convective heat exchange between the mixture obtained in step (c) and the stem reformer tubes, thereby obtaining a hydrogen and carbon monoxide containing gas having a reduced temperature (Fig. 1).

Regarding claims 1-2, while Fuderer discloses that the steam to carbon molar ratio of feed to step (b) is controlled (C6/L2-7), with the desire to minimize said ratio (C3/L38-42 and C4/L42-43) the reference does not explicitly disclose said ratio being below 1, and further between 0.5 and 0.9. The specific steam to carbon molar ratio of feed to step (b) is not considered to confer patentability to the claims. As the reactor operating efficiency and product composition are variables that can be modified, among others, by adjusting said steam to carbon molar ratio of feed to step (b), the precise steam to carbon molar ratio of feed to step (b) would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed steam to carbon molar ratio of feed to step (b) cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the steam to carbon molar ratio of feed to step (b) in the process of Fuderer to obtain the desired balance between the operation efficiency and product composition (*In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (*In re Aller*, 105 USPQ 223).

While Fuderer discloses that produced synthesis gas can be used for synthesis of other products (C11/L3-20). While the reference does not explicitly teach that said produced synthesis gas can be used to produce a hydrocarbon stream using a Fischer-Tropsch process, combination of synthesis gas production with Fischer-Tropsch process using synthesis gas to produce hydrocarbons to ultimately produce a base oil, was well known in the art at the time of the invention (as evidenced by Bertaux et al., see C3/L8-C6/L24). It has been held that a process is

not patentable where the process is an obvious combination of two processing steps, wherein each processing step lends to end products the desirable properties that each is known to produce when practiced alone and there exists no evidence of co-action between the steps that produces unexpected results. See *In re Fortess and Schoeneberg*, 152 USPQ 13 (CCPA 1966). In the instant case the first processing step comprises production of synthesis gas, as disclosed by Fuderer, and the second processing step comprises using said synthesis to produce a hydrocarbon stream using a Fischer-Tropsch process to ultimately produce a base oil, as disclosed by Bertaux et al.

Further, Bertaux et al. teaches that product stream comprising hydrocarbons having 5 or more carbon atoms is separated and the remaining stream is being used as fuel (C3/L3-29), but the reference does not disclose any other uses for said stream.

Parkhurst teaches that said lower temperature boiling stream (and gaseous stream) separated from the product stream of Fischer-Tropsch process can be not only used as a fuel but also can be recycled to the step producing synthesis gas (P2/L28-54, P2/L74-P3/L15). The reference also teaches that various process operating conditions and economy considerations would dictate where a stream is being recycled to (P2/L28-54).

It would have been obvious to one having ordinary skill in the art at the time of the invention to recycle the stream remaining after separation of hydrocarbons having 5 or more carbon atom from the Fischer-Tropsch product stream in the process of Fuderer in view of Bertaux et al. to the synthesis gas generation step, as taught by Parkhurst, to improve process economy.

Regarding claims 3 and 5, modified Fuderer discloses the process wherein the

temperature of the mixture obtained in step (c) is the same or an obvious variant of the claimed temperature of between 800°C to 1050°C. Specifically, the reference discloses that the temperature of the effluent from the step (b) is from about 650°C to about 900°C (C8/L17-20) and that said temperature rapidly raises as the result of the exothermic reactions for example to above 930°C for typical operation before it brought down to from about 900°C to about 1100°C (C8/L28-41). Further the reference discloses that the temperature of the mixture obtained in step (c) may raise rapidly to about 1100°C (C9/L57-60) and that an ordinary artisan would adjust various operating conditions to control, among others, the temperature of the mixture obtained in step (c) for the purpose of producing sufficient heat to supply the requirements of step (b) (C12/L7-52). Therefore, the specific temperature of the mixture obtained in step (c) is not considered to confer patentability to the claims. As the reactor operating efficiency and product composition are variables that can be modified, among others, by adjusting said temperature of the mixture obtained in step (c), the precise temperature of the mixture obtained in step (c) would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed temperature of the mixture obtained in step (c) cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the temperature of the mixture obtained in step (c) in the process of modified Fuderer to obtain the desired balance between the operation efficiency and product composition (*In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (*In re Aller*, 105 USPQ 223).

Regarding claims 4 and 6-7, modified Fuderer discloses all of the claim limitations as set forth above. Additionally the reference discloses the process further comprising autothermally reforming (ref. 9 & 8) the mixture obtained in step (c) (Fig. 1).

Regarding claims 8-9 modified Fuderer discloses all of the claim limitations as set forth above. Additionally Bertaux et al. discloses the process further comprising steps:

- (g) hydrocracking/ hydroisomerizing the hydrocarbon product to form a middle distillate and a residue (C3/L8-C6/L7);
- further comprising subjecting the residue to catalytic dewaxing to obtain a base oil (C3/L8-C6/L7).

3. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fuderer (USP 4,650,651) in view of Bertaux et al. (EP 776959), further in view of Parkhurst (USP 2,324,172), and further in view of Eilers et al. (EP 668,342).

Regarding claim 10 modified Fuderer discloses all of the claim limitations as set forth above. Additionally Bertaux et al. discloses that step (g) above uses hydrogen, but the reference does not explicitly disclose any source of said hydrogen (C3/L8-C6/L7).

Eilers et al. teaches that hydrogen used in the hydrocracking/ hydroisomerizing step is generated by conventional synthesis gas production step (P7/L4-6). While the reference does not explicitly disclose that synthesis gas has to go through hydrogen recovery unit before being used in hydrocracking/ hydroisomerizing step, since synthesis gas comprises other gases in addition to hydrogen, said other gases would have to be, inherently, remove before said synthesis gas can be fed into the hydrocracking/ hydroisomerizing step. Therefore, use of hydrogen obtained from synthesis gas in the hydrocracking/ hydroisomerizing step of Bertaux et al. would be obvious to

one of ordinary skill in the art, because it would amount to nothing more than a use of a known material for its intended use in a known environment to accomplish entirely expected result.

Response to Arguments

4. Applicant's arguments filed on 16 March 2007 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

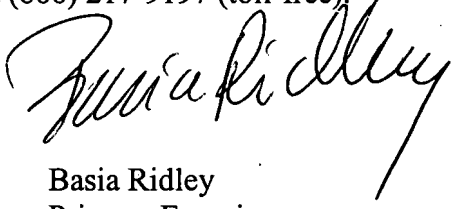
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Basia Ridley, whose telephone number is (571) 272-1453.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola, can be reached on (571) 272-1444.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Technical Center 1700 General Information Telephone No. is (571) 272-1700. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Questions on access to the Private PAIR system should be directed to the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).



Basia Ridley
Primary Examiner
Art Unit 1764

BR
June 10, 2007